

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: James B. Kimble, Charles A. Drake, Jianhua Yao and
An-hsiang Wu

Serial No.: 08/956,082

Group Art Unit: 1764

Filed: 10/23/97

Examiner: W. Griffin

For: HYDROCARBON CONVERSION CATALYST COMPOSITION AND
PROCESSES THEREFOR AND THEREWITH

DECLARATION UNDER 37 C.F.R. 1.132

Honorable Commissioner of Patents and Trademarks
Washington, D.C. 20231

Sir:

I, Jianhua Yao, declare:

I am an inventor of the invention claimed in the above-identified
application for patent and have reviewed the Office Action mailed November, 10, 1998
and the references cited therein;

I am a citizen of Canada and a resident of Bartlesville, Oklahoma;

I received a B.S. degree in Chemistry from Nanjing University (China)
in 1982, an M.S. in Catalytic Chemistry from Nanjing University in 1985 and a Ph.D.
degree in Catalytic Chemistry from the Concordia University in Montreal in 1992.

I have been employed by Phillips Petroleum Company in Research and
Development since 1995;

I have worked on various R&D projects pertaining to catalytic
hydrocarbon conversion catalysts and processes.

I am the inventor or co-inventor in 1 U.S. patent and the author or co-author of about 29 technical articles;

as a result of my training and experience, I believe I am fully qualified to conduct and supervise research in the subject matter area of the above-identified application;

the following tests were carried out by me or on my behalf and under my supervision in laboratories of the Research Center of Phillips Petroleum Company in Bartlesville, Oklahoma.

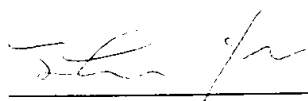
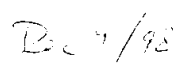
The hydrocarbon conversion process was carried out the same as that disclosed in Example IV of the application (pages 35-39) with control run which employed a catalyst made by air-heating. The conversion process was run for 6 hours. The results are shown in the following Table A.

Table A			
Catalyst	Olefins + BTX (weight %)	Ratio Olefins/BTX	Coke %/hr
X (ZSM-5+ZnTiO ₃ +silica binder+steam)	64.6	0.43	0.24
Y (ZSM-5+ZnTiO ₃ +silica binder+air-heating)	60.9	0.19	1.45

As shown in Table A, catalysts having the same compositions were used. The only difference is that catalyst X was steam-heated as recited in the claimed invention whereas catalyst Y was subject to air-heating under the conditions disclosed in Kaeding (US 4,078,009). Hydrocarbon conversion using catalyst X produced 64.6%

by weight of olefins and BTX in the product stream, had a very high and desired olefins to BTX ratio of 0.43, and had a very desirably low coking rate of 0.24%/hour. On the other hand, a hydrocarbon conversion process using catalyst Y produced a low 60.9% of olefins and BTX in the product stream, had a very low olefins to BTX, and had a very high undesirable coking rate of 1.45%/hour.

I, Jianhua Yao, further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon.

Jianhua Yao Date